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MAR 24 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Andrea F. GULLA, et al.
Serial No.: 10/830,182
Filed: 04/22/2004
For: CATALYST.. REDUCTION

: Group: 1793
: Examiner: Hailey, Patricia L.

Hedman and Costigan
1185 Avenue of the Americas
New York, NY 10036
March 24, 2008

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants request review of the Final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s). No more than five (5) pages are provided.

I am the Attorney of record.

Respectfully submitted,

Charles A. Muserian

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Tel. 212 302 8989

CAM:mlp
Enclosures

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APPLICANTS' STATEMENT

The claims in the application are claims 1, 3, 5 to 7, 10, 12 to 22 and 36 to 48, all other claims having been cancelled. Claims 41 to 44 have been allowed and now independent claim 45 is deemed allowable since it has been objected to as being dependent on a rejected claim.

Claims 1, 3, 5 to 7, 10, 12, 13, 15 to 29 and 46 to 48 were rejected under 35 USC 103 as being obvious over the Forquy patent taken in view of the Lang et al and Ito et al patents and claims 1, 3, 5 to 7, 12, 14 to 19, 47 and 48 were rejected under 35 USC 103 as being obvious over the Kobylinski et al patent taken in view of the Forquy et al patent. The Examiner states that Forquy discloses a catalyst comprised of ruthenium sulfide and at least one other transition metal including cobalt on a support. The Examiner concedes Forquy does not disclose a "conductive carbon black support" but cites Lang et al as showing a catalyst on a "preformed carbon support" including carbon black and the Examiner concludes that carbon black and active carbon are known catalyst supports. Kobylinski et al is cited as showing a catalyst by coating a support with a ruthenium or rhodium sulfide with a platinum metal sulfide. The Examiner concedes it does not teach electrocatalyst or a conducive support but it would be obvious to have this. The Examiner concedes cobalt sulfide is not taught but cites Forquy as showing this.

Applicants traverse these grounds of rejection as the combination of the prior art that the Examiner has made with the benefit of Applicants' teaching would not suggest Applicants' invention.

The Examiner has again cited the Forquy et al patent which as can be seen from Professor Faita's declaration which the Examiner failed to comment on in no way relates to Applicants' invention using a conductive carbon black support. The declaration clearly shows that active carbon and the other supports of Forquy et al are not conductive and cannot carry out Applicants' conductive function.

The Lang et al reference, even if combined with Forquy patent is again directed to a catalyst having hydrogenation activity and would not be considered by one skilled in the art wishing to solve the technical problem of providing an electrocatalyst for oxygen reduction resistant to a chlorinated hydrochloric environment. Neither electrocatalysis or oxygen reduction are mentioned in Lang et al., nor the specific embodiment of ruthenium sulfide is the object of a specific example.

But the sentence which clearly demonstrates how far is the Examiner from appreciating the technical content of the invention is to be found on page 3 of the Office Action, referring back to Forquy's patent:

"The catalyst of Forquy's et al. would be expected by one of ordinary skill in the art to function as an "electrocatalyst for oxygen reduction", absent the showing of convincing evidence on the contrary (!) first of all Prof. Faita's declaration is evidence of the contrary, and secondly one considering the non conductive catalyst for THT dehydrogenation of Forquy et al. as a viable candidate to function in oxygen reduction electrocatalysis, would per se show to lack any skill whatsoever in the art of electrocatalysis, given the fact that electrical conductivity is one of the key points to be taken into consideration.

To summarize:

- * the invention belongs to the field of electrocatalysis, in particular to electrocatalysts for oxygen reduction.
- * the closest prior art consists of rhodium sulfide supported on conductive carbon black, which is active and stable in such an electrolytic environment but that is way too expensive.
- * the solution provided by the present invention consists of a ruthenium-cobalt sulfide supported on a conductive carbon black, as claimed in present claim 1;

After utility and novelty are established, section 103 makes patentability depend upon non-obviousness of the

invention to be patented. The first sentence of this section requires that:

- (1) the scope and content of the prior art be determined;
- (2) the differences between the prior art and the claims in issue be ascertained;
- (3) the level of ordinary skill in the pertinent art be resolved

Referring to item (1), scope and content of the pertinent art of electrocatalysis must be determined, that is of a science dealing with developing electrically conductive catalysts to enhance electrochemical reactions in suitable cells and electrolyzers. One of skill in the art would therefore have taken into consideration US Patents No. 5,958,197 and No. 6,149,782 (cited in the application), which disclose electrocatalysts for oxygen reduction in a hydrochloric environment. Additionally, of all the documents cited by the Examiner, one of skill in the art would only have considered the Reeve et al. article, which is directed to electrocatalysts. At best, he would also have considered searching technical disclosures dealing with stability of noble metal compounds in a chlorinated hydrochloric environment.

The Examiner has conceded finally that Forquy does not explicitly disclose carbon black as the support nor a surface area for the support. The important thing is Forquy does not

teach any support for the catalyst which is electrically conductive as required by the claims and is no way directed to Applicants' problem and Applicants' solution thereof. A non-conductive support could not be deemed equivalent to Applicants' electrically conductive carbon black.

Claims 20 to 22 and 36 to 40 have been rejected under 35 USC 103 as being obvious over the Reeve et al reference taken in view of Forquy et al, Lang et al and Ito et al. Reeve et al is cited as showing carbon supported transition metal sulfide electrocatalysts such as $Mo_xRu_yS_z$ as gas diffusion electrodes. The secondary art is applied as above.

Applicants traverse this ground of rejection as the combination of the prior art in no way teaches Applicants' invention. The Reeve et al reference relates to catalysts of MoRuS, MoRhS, MoO₃S, RuS and ReRuS or carbon black for oxygen reduction activities and has no relationship to CoRuS electrocatalyst for oxygen reduction. The secondary references have all been discussed with respect to their deficiencies and the combination in no way relates the problems involved and solved by Applicants' invention. Therefore, withdrawal of this rejection is requested as one cannot combine apples and oranges.

CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

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3-24-08

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Goup: 1793

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